

## Claims

1. A method for receiving a frequency modulated signal, **characterized** in that
  - the radio frequency signal is mixed into a low-frequency signal,
  - the falling and rising edges of said low-frequency, modulated signal are detected,
- 5    - a second signal is formed on the basis of said edge detection, the frequency of the second signal being twice the frequency of said low-frequency signal, and
  - said second signal is frequency detected to form a demodulated signal.
2. A method according to Claim 1, **characterized** in that the processing of the frequency modulated signal includes the following steps:
  - 10    - the antenna signal is filtered with a band pass filter,
  - the signal is amplified,
  - the signal is down-converted in at least two branches with phase-shifted local oscillator signals LO,
  - the signal is low pass filtered and
  - 15    - amplified.
3. A method according to Claim 1, **characterized** in that the processing of the frequency modulated signal also includes the following steps:
  - the signals are phased in at least two branches,
  - the signals are summed into one branch,
  - 20    - the signal is low pass filtered,
  - amplified and

- demodulated.

4. A method according to Claim 1, **characterized** in that the demodulation of the frequency modulated signal includes the following steps:

- 5 - the modulated signal is divided into two branches, the first one for the detection of the rising signal edge and the second one for the detection of the falling signal edge;
- the rising edge of the modulated signal is detected in the first branch,
- the modulated signal is inverted and the rising edge of the inverted, modulated signal is detected in the second branch, and
- the signals processed in the first and the second branch are combined.

10 5. A method according to Claim 1, **characterized** in that the demodulation of the frequency modulated signal includes the following steps:

- the modulated signal is divided into two branches, the first one for the detection of the rising signal edge and the second one for the detection of the falling signal edge,
- the rising edge of the modulated signal is detected in the first branch,
- 15 - the falling edge of the modulated signal is detected in the second branch, and
- the signals processed in the first and the second branch are combined.

6. A method according to Claim 1, **characterized** in that pulses of a predetermined length are formed on the basis of said edge detection, and the pulses are summed to form said second signal.

20 7. An arrangement for receiving a frequency modulated signal, **characterized** in that it comprises

- means for mixing a radio frequency signal into a low-frequency signal, and demodulator means, which comprise
- means for detecting the falling and rising edges of said low-frequency signal,

- means for forming a second signal on the basis of said edge detection, the frequency of the second signal being twice the frequency of said low-frequency signal, and

- means for the frequency detection of said second signal.

- 5     8. An arrangement according to Claim 7, **characterized** in that it comprises mixers and  $0^\circ$  and  $90^\circ$  phase shifters for mixing the signal of at least two branches with the signal of the local oscillator LO.
- 10     9. An arrangement according to Claim 7, **characterized** in that it comprises  $0^\circ$  and  $90^\circ$  phase shifters, an adder and a demodulator of the frequency modulated signal.
- 15     10. An arrangement according to Claim 7, **characterized** in that the demodulator of the frequency modulated signal comprises two branches, of which the upper branch comprises a pulse detector for detecting the rising edge of the frequency modulated signal to be demodulated, and the lower branch comprises an inverter and a pulse detector connected in series for detecting the falling edge of the frequency modulated signal to be demodulated, and an adder that combines the branches.
- 20     11. An arrangement according to Claim 7, **characterized** in that the demodulator of the frequency modulated signal comprises two branches, of which the upper branch comprises a pulse detector for detecting the rising edge of the frequency modulated signal to be demodulated, and the lower branch comprises a pulse detector active on the falling edge of the signal for detecting the falling edge of the frequency modulated signal to be demodulated, and an adder that combines the branches.
- 25     12. An arrangement according to Claim 7, **characterized** in that the means for detecting the edges of a low-frequency signal comprise a pulse generator for forming a pulse of a specified length as triggered by the edge of a low-frequency signal.
- 30     13. A mobile station, **characterized** in that it comprises an arrangement according to Claim 7 for receiving a frequency modulated signal.